

ORIGINAL  
FILE

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, D.C. 20554

In the Matter of

**UTILITIES  
TELECOMMUNICATIONS  
COUNCIL**

Petition to Amend Parts 2,  
21, and 94 of the  
Commission's Rules to  
Accommodate Private Microwave  
Systems in the 1.71-1.85 GHz  
Band and in Bands Above 3 GHz

RM 7981

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

**COMMENTS**

GTE Service Corporation, on behalf of its affiliated domestic telephone, satellite, and cellular companies ("GTE"), hereby submits its Comments on the Petition for Rulemaking ("Petition") filed by the Utilities Telecommunications Council ("UTC") that is captioned above.<sup>1</sup>

**BACKGROUND**

UTC's Petition is an outgrowth of the Commission's recent efforts in ET Docket No. 92-9 to establish a spectrum reserve in the 2 GHz band for emerging technologies.<sup>2</sup> In its Petition, UTC asks that the Commission establish a separate rulemaking proceeding to consider technical issues that arise as a result of the Commission's proposal in Docket No. 92-9 to displace terrestrial microwave users of the 2 GHz band. Specifically, UTC believes that the Commission should commence a separate proceeding to make the 1.71-1.85 GHz, 3.7-4.2 GHz, 5.925-6.425 GHz,

<sup>1</sup> Public Notice 22934, released May 1, 1992.

<sup>2</sup> See Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies (Notice of Proposed Rulemaking), FCC 92-20, released February 7, 1992 [hereinafter "Notice"].

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and 10.7-11.7 GHz bands available for routine licensing in the Private Operational Fixed Microwave Service under Part 94.<sup>3</sup> In addition, UTC urges the Commission to adopt appropriate channeling plans and technical standards to ensure that these bands are adequate to meet the needs of existing and future private microwave systems.<sup>4</sup>

Various subsidiaries of GTE Corporation operate numerous common carrier microwave stations in the 2 GHz band as well as in the 6 GHz, 11 GHz, 18 GHz, and 23 GHz bands. In addition, GTE Spacenet Corporation ("GTE Spacenet") operates domestic fixed satellites that operate in C-band, meaning that GTE Spacenet's earth stations receive information from Spacenet's satellites in the 3.7-4.2 GHz range. Accordingly, GTE has a direct and vital interest in this proceeding.

GTE supports the general thrust of UTC's Petition. The Commission must address and resolve the technical issues associated with relocating the 2 GHz users to higher frequency bands before reallocating the 2 GHz band to new users, if indeed the Commission decides in Docket No. 92-9 that such a reallocation is necessary and appropriate. However, GTE takes issue with some of the rule changes UTC proposes in its Petition. As discussed below, some of the changes UTC proposes for the 4 GHz band will cause severe problems for C-band satellite users and thus would not serve the public interest.

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<sup>3</sup> Petition at ii-iii.

<sup>4</sup> Id. at iii.

## DISCUSSION

### The Commission Must Resolve Any Technical Issues Associated With Relocating the 2 GHz Band Users Prior to Any Reallocation, and Must Deal With All 2 GHz Users in An Even-Handed Manner.

UTC argues at length in its Petition that the Commission must commence a new rulemaking proceeding "to develop specific rules to accommodate both the technical, as well as the legal eligibility, [sic] requirements of any displaced 2 GHz systems, and to provide spectrum for new private microwave users."<sup>5</sup> UTC faults the Commission's Notice in Docket No. 92-9 for its failure to propose any rule changes for the frequency bands to which the displaced 2 GHz users may be moved.

GTE is generally supportive of the concerns UTC raises in its Petition. If the Commission is going to move the existing 2 GHz users to higher frequency bands to create the bandwidth necessary at 2 GHz to accommodate new technologies, then it is incumbent upon the Commission to ensure that those higher frequency bands can accommodate all displaced 2 GHz users. Thus, it is incumbent on the Commission to address the specific technical and legal issues associated with relocation and make appropriate rule changes to deal with those issues. The Commission recently addressed concerns such as those advanced by UTC in a letter to Senator Hollings in which the Commission stated that it would be issuing a further Notice of Proposed Rulemaking in Docket No. 92-9 to address significant technical and operational issues raised in this docket.<sup>6</sup> Thus, GTE is confident that the Commission will indeed address the concerns raised by UTC in its Petition at some point in the course of Docket No. 92-9.

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<sup>5</sup> Id. at 4.

<sup>6</sup> Letter from the Office of the Chairman, FCC to Hon. Ernest P. Hollings, April 20, 1992, at 1.

Of greater concern to GTE is the manner in which the Commission addresses those specific technical issues associated with the relocation of the existing 2 GHz users. The Commission in its Notice expresses great concern about the impact of its proposed emerging technologies band on all 2 GHz users.<sup>7</sup> Further, as evidenced by the filings to date in Docket No. 92-9, the private microwave users are very vocal about the ramifications of relocation. GTE does not question the validity of the concerns raised by UTC and the other private microwave users regarding relocation. However, in addressing the technical issues associated with moving the existing 2 GHz users into higher frequency bands, the Commission must remember that there are common carrier users who operate terrestrial microwave facilities at 2 GHz as well. The technical and operational issues that concern private microwave users at 2 GHz are substantially the same issues that affect common carrier users of this frequency band. These common carrier users operate their microwave stations to provide vital communications services to the public, and thus their use of the 2 GHz frequency band serves the public interest.

As such, the Commission should accord equal treatment to common carrier and private microwave users in resolving those technical issues associated with relocating the existing 2 GHz users. It would not be equitable nor would it serve the public interest to accord different rights and make different accommodation plans for common carrier and private 2 GHz users under these circumstances.

**UTC's Proposed Rule Changes for the 4 GHz Band  
Do Not Serve the Public Interest in All Cases.**

In its Petition, UTC proposes various changes to the technical rules governing those frequency bands that may receive those users who are displaced from the 2 GHz band if that band is reallocated for emerging technologies. Of

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<sup>7</sup> Notice at ¶22.

particular interest to GTE are UTC's proposed changes to those rules that affect the 4 GHz band.

GTE has no problem with the idea of relocating existing 2 GHz users into the 4 GHz band, as long as the displaced 2 GHz users frequency coordinate and implement their systems in compliance with established industry practices for this frequency range. It is not realistic to assume that all displaced 2 GHz users will be able to move their services to alternative transmission media such as fiber. Therefore, all possible higher frequency bands should be examined to identify those bands that can accommodate the displaced 2 GHz users. However, to use an old adage, Peter should not be robbed to pay Paul. The relocation of the existing 2 GHz users should not result in serious harm to the incumbent users of the higher bands. Unfortunately, the changes UTC suggests to the rules governing the 4 GHz band would lead to just such a result.

UTC recommends in its Petition that "the 3.7-4.2 GHz (4 GHz) common carrier band be made available for routine licensing in the Private Operational Fixed Microwave Service on a co-primary basis."<sup>8</sup> GTE has no objection to such a proposal. However, UTC goes on to argue that since "the proliferation of earth stations in the 4 GHz band renders the majority of the band practically useless as spectrum for new fixed microwave operations," the Commission should designate 80 MHz of the band as available to the Fixed-Satellite Service only on a secondary basis.<sup>9</sup> This is completely unacceptable.

The 4 GHz band is presently shared on a co-equal basis between registered (receive-only) and licensed earth station services, on the one hand, and terrestrial common carrier services, on the other. In addition, unregistered receive-only earth station users operate in the band on a secondary basis. As UTC effectively

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<sup>8</sup> Petition at 20.

<sup>9</sup> Id.

recognizes in its Petition, the 4 GHz band is already very congested in many parts of the country.

If the Commission were to redesignate 80 MHz of the C-band as proposed, GTE believes that as a practical matter, terrestrial microwave use of that 80 MHz would severely restrict satellite and earth station operation in that segment of the spectrum. This is simply unreasonable. The 80 MHz that UTC would designate for secondary use constitutes 16 percent of the satellite band, yet satellites cannot be "retuned" to operate at different frequencies and permit the migration of services into different bands. Thus, UTC's proposal would cost satellite operators millions of dollars in lost investment. Similarly, existing licensed and registered earth station operators have made a substantial investment in satellite technology. Their investment was based upon an understanding that their services would receive maximum protection from interference, an understanding that would be destroyed by UTC's proposal.

More importantly, proposed changes in policy of the magnitude of UTC's proposal tend to create uncertainties in the market regarding the reliability and stability of satellite-based technologies. As such, changes in policy such as that proposed by UTC harm the satellite industry in its efforts to compete with other service providers that employ different transmission media. UTC offers no valid justification in its Petition for its proposal to put satellite users on secondary status in 80 MHz of the 4 GHz band. Since UTC's recommendation would place a disproportionately high burden on the satellite industry and would not serve the public interest, GTE believes that it warrants no further consideration.

In its Petition, UTC also recommends that "the 4 GHz band be rechannelized into 1.6 MHz, 5 MHz and 10 MHz bandwidth channels that would be available for

'stacking' to accommodate systems with wider bandwidth requirements."<sup>10</sup> UTC would also eliminate the loading requirements presently imposed on users of the 4 GHz band for relocated private microwave users. GTE agrees with UTC's proposal regarding the loading requirements. However, GTE has serious reservations about UTC's proposal to rechannelize the 4 GHz band. GTE would have no objection if the band could be restructured in a manner that did not severely impact satellite users. However, at this point in its analysis, GTE doubts whether this is possible.

As UTC observes in its Petition, the 4 GHz band is currently channelized for wideband services. For terrestrial services, the band is split into 20 MHz channels. Since the early days of microwave communications, the frequency assignments of these channels have been standardized on one plan to permit optimum spectrum utilization with minimum risk of interference. Satellite channels ("transponders") are frequently structured to take advantage of this standard frequency plan. Transponders in the 4 GHz band are usually 40 MHz wide. The center frequency of a transponder is always located in the guardband between the terrestrial microwave channels, and is 10 MHz removed from the center frequencies of the adjacent terrestrial channels. A portion of the terrestrial microwave and satellite channelization plans is portrayed in graphic form in Figure 1.

Thus, satellite services operating at the transponder center frequency will suffer the least amount of interference from terrestrial services, since they effectively operate in the guardband between the terrestrial channels and are 10 MHz away from the terrestrial channel center frequencies on either side. This benefit may be lost if the 4 GHz band is restructured as UTC proposes. Depending on how the new channels are set up, the transponder center frequencies may no longer correspond to the guardbands between the terrestrial channels. But even if

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<sup>10</sup> Id.

those guardbands are preserved, the 10 MHz offset from the center frequencies of the terrestrial channels will be lost to some extent. Presumably there will still be some offset, but it will not be as much.

This loss will create major problems for certain types of satellite services such as satellite broadcast (point-to-multipoint) systems, which typically involve the transmission of data from a central location to many receive-only terminals. These networks typically operate at the transponder center frequency to take advantage of the low terrestrial interference levels and thus maximize the number of receive-only terminals that have good reception in congested locations. Loss of the 10 MHz offset will make it more difficult to expand existing broadcast networks or establish new ones. That is because the increased levels of interference will make it more difficult to achieve adequate reception at receive-only terminals in frequency-congested areas. Satellite home TV reception would also be severely impacted for the same reason. In frequency-congested locations, these stations are often protected from terrestrial microwave interference only by the 10 MHz frequency offset advantage that is inherent in the terrestrial microwave frequency plan. Any revised frequency plan would result in less frequency offset and therefore in increased interference with TV reception.

Thus, it is not at all clear to GTE that the 4 GHz band can be restructured as proposed by UTC without having a severe impact on satellite users. For these reasons, it may be preferable to allow the displaced 2 GHz users to operate their narrowband services in the 4 GHz band within the currently established frequency plan. Although this may be perceived as an inefficient use of spectrum, any other alternative would adversely impact the provision of satellite services and, as noted above, the 4 GHz band is already subject to heavy use.

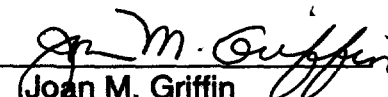
**CONCLUSION**

UTC raises some valid concerns in its Petition. Clearly, the Commission must address those technical and legal issues associated with relocating the incumbent 2 GHz users to higher frequency bands before it makes any reallocation of the 2 GHz band. In addressing those issues, the Commission should accord equal treatment to all users, both private and common carrier alike.

However, GTE takes issue with several of UTC's proposals regarding rule changes in the 4 GHz band. As discussed herein, UTC's proposal to designate 80 MHz of the 4 GHz band as available for use in the Fixed-Satellite Service only on a secondary basis imposes undue burdens on the satellite industry and thus does not serve the public interest. Similarly, it may not be possible to restructure the 4 GHz band as proposed by UTC without having a severe impact on satellite users. Thus, while it is entirely appropriate for the Commission to address those technical issues that are posed by relocating the existing 2 GHz users to higher frequency bands, the Commission should recognize that not all of UTC's specific proposals to change the Commission's technical rules will serve the public interest.

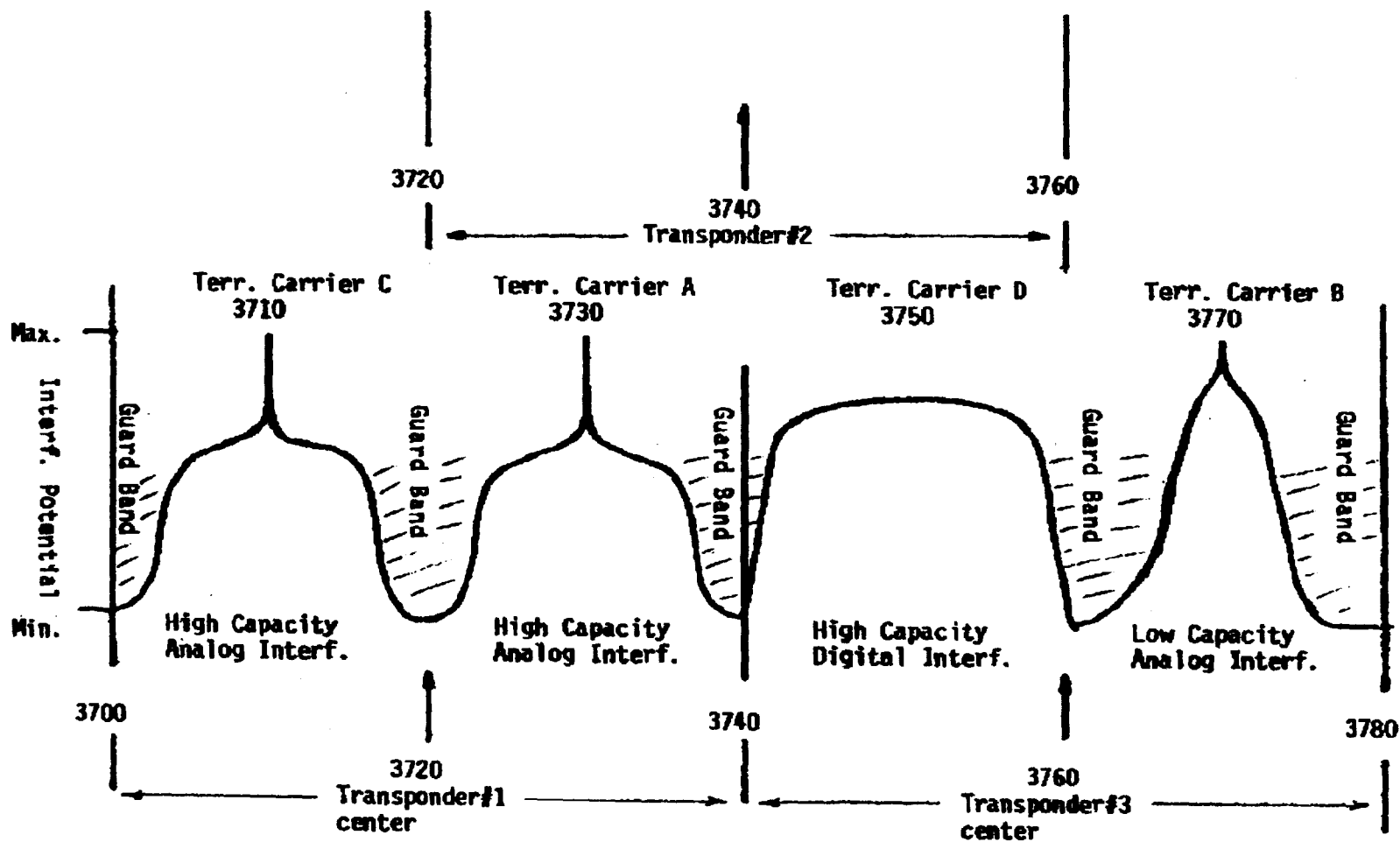
Respectfully Submitted,

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June 1, 1992

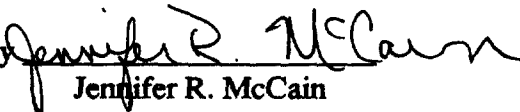


Transponder Interference Potential from Terrestrial Systems  
with various channel loading

## **CERTIFICATE OF SERVICE**

I, Jennifer R. McCain, hereby certify that a copy of the foregoing "Comments" of GTE Service Corporation has been mailed by first class United States mail, postage prepaid on the 1st day of June, 1992, to the following party:

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